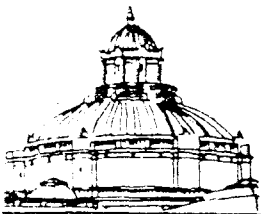


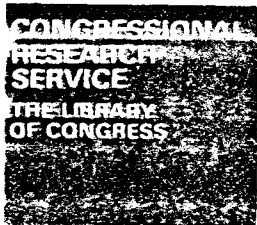
COST OVERRUNS IN MAJOR WEAPON SYSTEMS:
CURRENT DIMENSIONS OF A LONGSTANDING PROBLEM

David E. Lockwood
Specialist in U.S. Foreign Policy and National Defense
Foreign Affairs and National Defense Division



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ABSTRACT

Cost overruns continue to plague the weapon systems acquisition process, despite repeated efforts over the last twenty years to alleviate the problem. This paper reviews the initiatives of the Reagan Administration to control cost overruns during the last 2-1/2 years and the actions taken by the Congress to strengthen its oversight role. Particular attention is directed at the critical need to enhance management incentive and accountability at all levels of the acquisition process. If recently instituted reforms in the Department of Defense fail to control cost overruns, pressure may grow for a more sweeping and radical approach. Serious consideration, in such an event, might even be given to removing responsibility for weapons acquisition management from the military services and assigning it to a civilian-operated supply agency.

EXECUTIVE SUMMARY

The results of past efforts to reduce cost overruns in major weapon systems have been almost uniformly regarded as unsuccessful and there is widespread skepticism regarding Reagan Administration efforts to solve the problem. A major reason for this, according to knowledgeable analysts, is that highlevel corrective decisions are not actually implemented at working levels. This resistance to implementation is a key obstacle to successful reform of the weapon systems acquisition process and control of cost growth. Former Deputy Secretary of Defense Frank C. Carlucci expressed particular concern in this regard in a year-end report (dated July 15, 1982) on DOD's acquisition improvement program:

While impatient for improvements, we recognize that cultural change in a vast organization takes some time. Our challenge is to incorporate the initiatives in the day-to-day operations and decision processes of the Department. This requires publicizing the initiatives to ensure a clear understanding at all levels, as well as overcoming the normal organizational resistance to change.

Reform efforts have failed in large part because of the lack of appropriate incentives and requirement for accountability necessary to ensure proper implementation. Accountability, according to critics, is diffused throughout the acquisition process. Incentives are non-existent or improperly directed. As one example, many critics insist that the acquisition process, encourages and rewards the design of complex and

expensive systems and penalizes work on simpler and less expensive ones, and does far too little to ensure high-quality, low-cost performance on the part of defense contractors. This incentives and accountability "gap," it has been asserted, is found at all levels -- the Congress and its oversight committees, the administrative layers of DOD, and the many defense-related industries and suppliers. There is no single individual or group primarily responsible for the deficiencies just described.

During the last two years, the Congress has taken some significant actions to curb the sharply escalating cost of weapon systems. The main focus has been to impose more stringent DOD reporting requirements on major weapon systems. Other recent initiatives that deserve mention are (1) the congressionally-mandated establishment of an Inspector General's office in DOD to audit and investigate the acquisition activities of the department and defense contractors; and (2) the Congress' approval of the wider use of multi-year contracts as a means of encouraging greater efficiency and lower cost in the production of certain weapons systems.

Without effective congressional oversight, factors that compete with and undermine considerations of cost and efficiency are likely to prevail. The Congress is particularly important in establishing effective accountability throughout the defense acquisition process. Questions have therefore been raised as to whether the Congress is organized and staffed adequately to carry out its oversight responsibilities in the weapons acquisition area. Is more analytical capability required? If so, should the requirement be met by increasing utilization of supporting agencies, such as the General Accounting Office and the Congressional Budget Office? Is the present

committee structure best suited to provide the close oversight needed to ensure accountability from defense officials as well as others?

There are observers who believe that only major structural change in the U.S. Government's procedure for buying weapons will solve the problem of cost overruns. Thus far, advocates of structural change have tended to focus on relatively modest revision of DOD's existing organization, with the aim of imparting greater objectivity and effectiveness to its weapons buying operations. Little or no attention has been directed at more sweeping structural change outside the current DOD framework -- such as the option of removing the major responsibility for acquisition management from the military services and assigning it to a civilian-operated supply agency.

On past occasions when the civilian supply agency concept has surfaced, most notably during World War I and World War II, it has been rejected by both military leaders and Presidents. Its future prospects probably depend to a large extent on whether or not the current acquisition reform efforts succeed in bringing cost overruns under control.

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I. INTRODUCTION AND OVERVIEW OF THE ISSUE

A. Administration's Decision to Increase Defense Spending

Among the earliest major policy initiatives of the Reagan Administration was the decision to increase sharply the level of defense spending. The country's new leadership viewed U.S. military preparedness as seriously deficient and in need of strengthening, a condition which had arisen from long-term neglect during the Vietnam War and subsequent disillusionment with American military involvement abroad. Not everyone shared the Reagan Administration's perspective in this regard. In the Congress, fundamental questions of affordability and priority have been raised. Can the country, at this time of economic stress, afford to direct such large sums of money into military programs? Are these expenditures justifiable when it means reduced funding for various social welfare and economic support programs? The controversiality of the Reagan Administration's defense spending initiative is further heightened by a long history of defense systems cost overruns.

B. Explanation of the Paper's Purpose, Scope, and Approach

This paper focuses on the continuing need to strengthen the role of management incentives and accountability throughout the defense acquisition process. A common theme in discussions of cost overruns is that both their causes and potential remedies have been identified, and in some cases policy changes

have been decreed. The results have been disappointing so far, according to the critics, because of inadequate implementation at the operating level, resulting from a totally inadequate incentive structure and system of accountability.

This paper provides an overview of present initiatives aimed at bringing cost overruns under control, and highlights attempts by the Congress and the Administration to correct deficiencies in management incentive and accountability. Questions raised include: What are the broad characteristics and dimensions of the problem? Why has it been difficult to introduce more incentive and accountability into the system? How do the present efforts at reform differ from past efforts? What are the prospects for success? Are there measures not presently being pursued which could and should be taken?

C. Cost Overruns a Longstanding and Complex Issue

The current interest in cost overruns is not a new phenomenon. Concern over waste and excessive costs has been a predictable feature of each year's DOD budget debate for decades. Under the prodding of the Congress, practically every Secretary of Defense during the last twenty years has attempted to reform the weapons acquisition process. It is the consensus of those who follow the issue, however, that these efforts have not succeeded very well -- that cost growth continues to be excessive and detrimental to the proper management of the defense budget. There is disagreement, however, over the actual extent of cost overruns and whether they have gotten worse in recent years. Senator William Roth during 1981 hearings on the acquisition process, stated that cost growth in major weapon systems had "skyrocketed." He supported his claim

by citing data showing that the difference between the initial cost estimate and current cost estimate in any given year for major systems had gone from an average of 31 percent in 1969 to 190 percent in 1981. 1/ On the other hand, Alice M. Rivlin, Director of the Congressional Budget Office, testified before the same committee six months later that:

In fact, the attention paid to cost growth over the past three decades has apparently met with some success: net of inflation and adjusted for quantity change, cost growth in weapons systems during the 1970s was only about half as great as that during the 1950s and 1960s. Nevertheless, the typical weapon system entering development today can still be expected to experience real cost growth totaling about 50 percent by the time the system is introduced into service. 2/

This latter assessment of cost growth reflects adjustments for inflation and quantity changes, which are presumed not to reflect unfavorably on DOD's efficiency and performance in the procurement of weapon systems. These two different appraisals of the cost growth problem reveal the difficulty of assessing the extent and significance of cost overruns. Many factors interact to create cost growth. Some are "uncontrollable," meaning that DOD and industry are able to exercise little or no influence on them. An often-cited example of this is inflation in the general economy. Other factors contributing to cost growth are "controllable," such as quantity or specification changes or inaccurate initial estimates of program costs, and these may or

1/ U.S. Congress. Senate. Committee on Governmental Affairs. Acquisition Process in the Department of Defense. Hearings, 97th Congress, 1st session. October 21, 27, and November 5, 1981. Washington, U.S. Govt. Print. Off., 1981. p. 2.

2/ U.S. Congressional Budget Office. Statement of Alice M. Rivlin before the Senate Committee on Governmental Affairs during hearings on congressional oversight of acquisition management in the Department of Defense. April 22, 1982. pp. 1-2.

may not reflect adversely on the integrity and efficiency of DOD/industry management.

Given the complexity of the problem and past failures to bring cost growth under control, it may be fitting to ask what prospects exist for the success of the current endeavor. Pessimists point to the institutional and behavioral obstacles to significant reform of the acquisition process. They argue that there is deeply ingrained bias throughout the decisionmaking hierarchy for high performance, service-specialized systems, with cost considerations relegated to low priority.

Optimists, on the other hand, while acknowledging past failures, see hope for successful cost overrun reform in recent economic and political changes. They point to the recent recession as a significant shift in the overall setting and one that has made Americans more sensitive than at any time in almost fifty years to the ways in which their tax dollars are being spent.

II. CONTEXT AND CAUSES OF DEFENSE COST OVERRUNS

A. Difference between "Cost Growth and "Cost Overrun"

"Cost overrun" and "cost growth" are closely related but not synonymous. "Cost overrun" refers to cost in excess of an initial contract estimate or target figure. It is directly related to estimating error and, as such, is often the most visible aspect of the large cost growth issue. "Cost growth" refers to the general, overall increase in program costs from one generation of systems to the next. It is possible by means of accurately estimating program costs in advance, to eliminate cost overruns and still have excessive cost growth. Furthermore, there are desirable causes of cost growth, such as incorporation of essential new technology. ^{3/} This paper examines important factors that contribute to both rising costs of major weapon systems and to the DOD and industry underestimation of these increases.

B. Extent and Significance of Defense Cost Overruns

As previously noted, the extent of the cost overrun problem depends on how figures are calculated and with what they are compared. For example, a May 1982 Congressional Budget Office review of DOD's quarterly Selected Acquisition Report (SAR) dated December 31, 1982, revealed that the 47 major

^{3/} Power, John R. (Jr.). A Cost Growth Primer. Concepts, Spring 1982. p. 94.

defense programs contained in the report experienced the largest quarterly increase ever reported -- \$150.1 billion in current dollars or a 50 percent increase in a period of only three months. 4/ However, the decision to procure additional quantities of the systems listed accounted for 66 percent of the total; dropping one program and adding another accounted for 19 percent; and only 15 percent or \$22.7 billion of the total increase was the result of cost growth caused by factors other than quantity changes or additions and deletions of programs. The other factors referred to in the CBO review were identified as engineering, estimating, schedule, economic, support, and other changes.

Another means of measuring trends in defense cost overruns is to compare DOD with non-DOD government programs. In this respect, many civilian programs have fared worse than military ones. Figures provided in an April 1982 report to the Congress by the General Accounting Office reveal that 137 DOD projects did better on an average than 239 civilian agency projects surveyed. 5/ The average increase in cost from the initial congressional budget estimates was 132 percent for defense programs and 175 percent for non-defense programs. In the conclusion of its report, GAO recommended that non-defense agencies be required to establish a reporting system for major acquisition similar to DOD's as a means of helping to minimize cost growth in civilian projects.

4/ U.S. Congressional Budget Office. A Review of the Department of Defense December 31, 1981 Selected Acquisition Report (SAR). Special Study, May 1982. pp. 2-6.

5/ U.S. General Accounting Office. Status of Major Acquisitions as of September 30, 1981: Better Reporting Essential to Controlling Cost Growth. Report No. MASAD-82-94, April 22, 1982. p. 8.

Despite the fact that defense systems cost overruns are smaller in scale than overruns in some non-defense areas of procurement, there are two factors that draw special attention to military programs. At a time of major cuts in social programs, the "guns versus butter" debate has become more intense. Also, the sheer magnitude of DOD expenditures is immense compared to most civilian programs. For example, each new Trident nuclear missile submarine is expected to cost in the vicinity of \$1.5-2 billion, with a total buy of 27 submarines and a total program cost of over \$50 billion. Because of controversiality and scale, therefore, DOD efficiency is more closely scrutinized than any other federal agency.

C. Principal Causes of Defense Procurement Cost Overruns

There are a number of major causes for cost growth in weapons development and production. Five important contributing factors are identified in DOD's quarterly Selected Acquisition Reporting (SAR) system. ^{6/} The SARs provide information on the cost, schedule, and technical performance of certain selected defense acquisitions. The reasons listed for cost growth in individual systems are as follows:

- Low inflation estimates
- Cost estimating errors
- Procurement schedule slippages
- Quantity changes
- Engineering modifications

^{6/} The legal reporting requirement for SARs was established by section 811 (a) of the Department of Defense Appropriation Authorization Act of 1976 (P.L. 94-106).

This list is by no means complete, since there are several different levels of causation to consider. For example, procurement schedule slippages (#3 on the above list) could result from one or more of the following factors:

- Procurement budget instability
- Lack of competition
- High risk system design
- Defense industry inefficiencies
- Excessive red tape/regulations
- Poor contract administration

Other than changes in quantity, the great nemesis of cost control in recent years appears to be unanticipated inflation. CBO Director Alice Rivlin has stated that unanticipated inflation accounted for the largest share of current-dollar cost overruns. 7/ A more controllable factor that competes with low inflation estimates as a major contributor to cost overruns is the practice of continuously upgrading qualitative requirements. Ever since the end of World War II, U.S. weapon design strategy has been to offset enemy or quantitative advantages by seeking and attaining qualitative superiority. It is an expensive strategy and one that, according to critics, has been followed to excess. A late 1979 GAO report on efforts to curb weapons cost growth concluded with the observation that: "In our opinion, the desire of U.S. military leaders to push the state-of-the-art with new concepts and designs has the biggest effect on costs." 8/

7/ U.S. Congressional Budget Office. Statement of Alice M. Rivlin, op. cit., p. 2.

8/ U.S. General Accounting Office. Impediments to Reducing the Costs of Weapons Systems. Report No. PSAD-80-6, November 8, 1979. p. 23.

D. Important Role of Incentives and Accountability

Initiatives to control cost overruns, in the opinion of many analysts, have failed in large part because the defense acquisition process lacks the appropriate incentives and requirement for accountability which are necessary to ensure their proper implementation. "Accountability" refers to the identification of individuals and organizations and the establishment of their responsibility for performing certain specified tasks and achieving successful results. "Incentives" refers to the variety of rewards and punishments by which accountable individuals and organizations may be motivated to perform their duties effectively.

Gilbert W. Fitzhugh, chairman of the Blue Ribbon Defense Panel that studied the acquisition process in the late 1960s, characterized the problems of accountability in the Department of Defense as follows:

Everybody is somewhat responsible for everything, and nobody is completely responsible for anything. So there's no way of assigning authority, responsibility, and accountability. You can't hold anybody accountable. There is nobody that you can point your finger to if anything goes wrong, and there is nobody you can pin a medal on if it goes right, because everything is everybody's business, and as you know, what is everybody's business is nobody's business. 9/

Another, closely-related theme involves non-existent or improperly directed incentives. For example, the acquisition process appears to encourage and reward the design of complex and expensive systems and penalize work on simpler and less expensive ones. The charge is also made

9/ Quoted in: Masey, Robert J., et al. Improving the Acquisition System. Concepts, Winter 1981. p. 13.

that the process does far too little to ensure high-quality, low-cost performance on the part of defense contractors. It is not clear that companies which consistently do well are supported while those which repeatedly fail find support progressively withheld. 10/

Recently, the directors of both the Congressional Budget Office and the General Accounting Office urged the Congress to adopt a two-year federal budgeting and appropriations cycle in order to give itself more time to oversee the executive branch. Comptroller General Charles A. Bowsher told the Senate Budget Committee in hearings that: "Program accountability and oversight are two areas that have languished somewhat in the last two years, as the budget debate has dominated the business of the Congress." 11/ He singled out defense program spending and said that the Congress should discipline itself with review schedules to determine the effectiveness of government agencies and programs.

These examples indicate that the lack of adequate incentives and accountability exists at all levels of the defense acquisition process, from the Congress and its oversight committees down through several administrative layers in the Department of Defense to the large and varied community of defense-related industries and suppliers.

10/ Weapons Acquisition: How Faulty is Current System? Congressional Quarterly Weekly Report, December 18, 1971. p. 2616.

11/ Washington Times, September 22, 1982, p. 3A.

III. CURRENT INITIATIVES TO CURB COST OVERRUNS

A. Congressional Efforts to Improve the Acquisition Process

On Capitol Hill, a three-pronged approach has been adopted to deal with cost growth. First, DOD reporting requirements on weapons costs have been refined and expanded to provide the Congress with more accurate and timely information on which to base funding decisions. Second, the Congress has expressed its intention to monitor individual programs more closely through the increased use of committee staff and legislative support agencies (GAO and CBO). Third, the congressional reform effort has included passage of new legislation aimed at improving the efficiency and cost effectiveness of industry's participation in the defense acquisition process. Perhaps the most visible provision in this last regard proposed and passed during the past two years was an amendment to the Department of Defense Authorization Act of 1981 which permitted increased use of multi-year contracts for the procurement of certain major systems.

B. Department of Defense Acquisition Improvement Program

The Reagan Administration initiated a concerted effort to reform DOD management of weapons programs when it entered office. Formally called the Defense Acquisition Improvement Program, it became widely and popularly known as the "Carlucci Initiatives," after then Deputy Secretary of Defense Frank C. Carlucci. Following a month of preliminary review and study,

Deputy Secretary Carlucci announced on April 30, 1981, the decision to make major changes in DOD acquisition philosophy and the acquisition process itself. A total of 32 initiatives were identified. 12/

These measures fell into several categories designed to (1) promote decentralization and participative management, (2) improve planning and execution of weapon systems programs, (3) strengthen the industrial base that supports the Department of Defense, (4) increase the readiness of weapon systems, particularly in the early stages of their lives in the field, and (5) reduce the burdensome administrative requirements that make the acquisition process more costly and time-consuming. 13/

Despite other specific goals, such as improving technical reliability and reducing long lead-times in delivery of weapon systems, the overriding concern of the Carlucci initiatives seemed to be that of controlling cost growth. While the Carlucci initiatives represent a broad and ambitious attack on the cost overrun problem, knowledgeable observers have pointed out that the ultimate success of the effort will depend greatly on overcoming long-standing obstacles to implementation. This challenge has been readily acknowledged by the DOD leadership. During hearings before the Special Panel on Defense Procurement Procedures in late 1981, Deputy Secretary of Defense Carlucci told the congressional group that:

12/ The last initiative which aims at increasing competition (#32) was added to the original list of 31 on July 27, 1981, at the insistence of the Congress.

13/ Brabson, G. Dana. Department of Defense Acquisition Improvement Program. Concepts, Autumn 1981. p. 10.

When we announced our new initiatives, we recognized the problem of implementation and admitted it was as important as the decisions themselves. We recognized fully that not only had the acquisition process been studied numerous times, but many of our initiatives had been tried before and never really got very far. 14/

No attempt is made in this paper to examine all the specific actions taken or planned to curb cost overruns. Instead, four of the more important initiatives will be analyzed, focusing on how each compares with similar efforts in the past and what provisions they include to overcome longstanding obstacles to implementation.

The initiative to receive the most attention has been the effort to achieve more realism in estimating costs. Although greater accuracy in predicting costs does not in itself overcome the problem of rising prices for successive generations of weapon systems, it does contribute to a more economically rational assignment of priority in the purchase of these items. Budgeting to the most likely cost is an important first step along the path of successful reform of the defense acquisition process.

Other actions and initiatives examined later in this paper include: (1) enhancement of the DOD program manager's role; (2) lessening the degree of U.S. reliance on high technology in the development of its weapon systems; and (3) imposition by the Congress of strict reporting requirements on weapon costs.

14/ U.S. Congress. Committee on Armed Services. Special Panel on Defense Procurement Procedures. Defense Procurement Policies and Procedures: Cost Management and Control. Hearings, 97th Congress, 1st session, July 23, 28, 30, September 10, 18, 19, 21, 24, 25, 26, 27, October 7, 15, 20, 27 and 28, 1981. Washington, U.S. Govt. Print. Off., 1981. p. 1086.

C. Need for More Realism in Estimating Costs

Among the factors widely considered to be most responsible for cost overruns is the practice of making unrealistically low initial cost estimates. In testimony before the Senate Committee on Governmental Affairs on March 23, 1983, Deputy Secretary of Defense W. Paul Thayer stated that "unrealistic cost estimating is a major cause of cost growth." He went on to explain that:

In the past we have been overly optimistic about the projected outyear costs of programs. The cost growth that results from this optimism produced increasing instability, stretch-outs, and more cost increases. It is a vicious cycle and a difficult one to reverse. 15/

Although a certain degree of error must be expected, and accepted, as a natural product of the uncertainties that accompany the acquisition of complicated systems over an extended period of time, there is almost unanimous agreement among defense analysts that the magnitude of error far exceeds such justifiable limits. Indeed, it is widely acknowledged that program costs are often purposely underestimated either because the contractors are lowering their cost estimates in order to win a contract with hopes of recovering costs on follow-on contracts (a practice known as "buying-in") or because DOD is forcing a program to fit available funding rather than providing the funding it takes to do the job. 16/

15/ U.S. Congress. Senate. Committee on Governmental Affairs. Management of the Department of Defense. Hearing, 98th Congress, 1st session, Part 1, March 23, 1983. Washington, U.S. Govt. Print. Off., 1983. p. 66.

16/ U.S. Department of Defense. Deputy Secretary of Defense. Internal memorandum to the secretaries of the military departments and others on the subject of improving the acquisition process; with attached recommendation and issues for decision, April 30, 1981. p. 6 (attachment).

It is widely believed that both the executive and legislative branches of government have permitted unrealistically low initial estimates for programs so that the programs can be approved. A noted authority on the defense acquisition process, Jacques S. Gansler, points out that:

As a result, when costs begin to grow, other programs are cut back, or the specific program is stretched out. This in turn causes further cost increases across the board and creates further cutbacks, and on and on. The solution would be to use realistic numbers in the first place; but that is extremely difficult because many other programs either could not be initiated, or would have to be terminated (both difficult actions). 17/

Past and present Administrations have focused their reform efforts on two broad aspects of the cost estimating process:

-- strengthening the role of independent estimators in the overall process; and

-- improving the formulas by which program cost estimates are calculated.

Before reviewing these two areas in detail, it is important to describe the cost estimating procedure. Each service program manager (PM) generates, with the aid of his staff, the initial cost estimate for the weapon system under his purview. It is done as part of the on-going DSARC (Defense Systems Acquisition Review Council) decision-making process, which includes consideration of many other aspects of the program, such as mission need, capability, technical risks and solutions, support plans, and contractual strategies. Concurrent with the PM's development of his cost estimate, a second life-cycle cost estimate is generated by an independent unit within the same service.

17/ Gansler, Jacques S. Can the Defense Industry Respond to the Reagan Initiatives? International Security, Spring 1982. p. 109.

The ground rules and basic assumptions (e.g., performance characteristics, design features, quantities, schedules, etc.) established by the PM are also used by the independent cost analyst. However, the approach and methodology employed to generate program cost estimates by the independent group may differ. For example, the PM may compute his estimate using the "engineering method," which relies on summarizing the estimated costs of detailed components of a system. On the other hand, the independent cost unit may choose to utilize the "statistical/parametric method," which proceeds by extrapolating costs from the actual costs of previous systems and correlating these costs with different characteristics of the new system.

At each major program decision point, or "milestone," all aspects of the particular weapon system are reviewed by the DSARC. The military department concerned is required to submit two program cost estimates -- one prepared by the relevant program manager and another by the independent cost unit within the department. Prior to the meeting of the DSARC, however, the two estimates are presented to the Cost Analysis Improvement Group (CAIG), an organization within the Office of the Secretary of Defense whose primary responsibility is to review service cost estimates and provide a second level of independent analysis. A memorandum for the DSARC is prepared by the CAIG with its evaluation of the two service estimates. As pointed out by Milton A. Margolis, current chairman of the CAIG, the independent assessments by his organization and the military department are intended to encourage the preparation of a realistic and accurate estimate on the part of the program manager. They may also serve as the basis for an actual revision of

the PM's estimate. ^{18/} If substantial disagreement exists over the estimated cost of a program, the DSARC chairman may request the program manager to reassess and, if necessary, revise projected cost figures. The final responsibility, however, remains with the program manager, whose estimate on the cost of a program is the one reflected in the DOD budget submission to the Congress.

1. Strengthening Role of Independent Estimators

A significant step taken in response to the need to ensure more accurate estimates occurred in June 1973 when the Cost Analysis Improvement Group (CAIG) was established. The CAIG was given the dual function of reviewing service cost estimates and fostering defense-wide improvements in military cost analysis capabilities. Information provided by witnesses at congressional hearings indicates that, as a rule, the CAIG's independent estimates have proven over the years to be more accurate than service generated figures where the two have differed. ^{19/} Nevertheless, it appears these estimates were frequently ignored or rejected by the program managers who were held individually responsible for the specified programs.

The current DOD leadership has moved to strengthen the CAIG as an independent cost review group. At the same time, the service-level independent cost analysis groups have been given more influence than before. The most important

^{18/} Margolis, Milton A. Improving Cost Estimating in the Department of Defense. Concepts, Spring 1981. p. 7.

^{19/} U.S. Congress. Senate. Committee on Governmental Affairs. Acquisition Process in the Department of Defense, op. cit., pp. 18-56.

evidence of this is the new requirement that program managers must not only consider independent cost estimates in establishing their budget estimates but also justify the use of an estimate lower than the independent one. The service secretaries, in turn, are required to provide an explanation of any decision leading to a choice of a budget based on the lowest estimate (independent or program manager's), and to provide plans for ensuring the lower figure is met. ^{20/} These requirements have forced participants in the weapons acquisition process to pay closer attention to cost estimates and the need for greater accuracy.

As a result of recent initiatives, the CAIG has also begun to review the costs of more weapons programs than before. Previously, it had restricted its reviews to those programs nearing key DSARC milestones. Under new DOD directives it has begun to focus on a much wider array of programs. However, the increased workload of the CAIG as well as the justification reports required from the PMs and service secretaries in connection with their decisions on cost estimates appears to have created, at least in the short run, a substantial burden on existing staff. DOD cost estimating organizations need not only more personnel but also individuals well trained in the arcane field of defense systems cost analysis. As J. Ronald Fox stressed in Arming America: How the U.S. Buys Weapons (1974):

^{20/} U.S. Department of Defense. Deputy Secretary of Defense. Internal memorandum to the secretaries of the military departments and others regarding guidance on the acquisition improvement program (AIP); with attached second year-end report of the Acquisition Improvement Steering Group. June 8, 1983. p. 10 (attachment).

Adequate cost estimating capability depends on the availability of people and methods for making cost estimates. It also depends on the responsiveness of these people and methods to the needs of the decisionmakers in the services and the Office of the Secretary of Defense. Cost estimates -- whether for new advanced technology systems, or for changes in systems already in existence -- are not statements of fact. Rather they are judgments of the cost of work to be performed under certain specified conditions. Consequently, if a decisionmaker is to consider an estimate reliable at any stage of the acquisition process, he must have confidence in the judgement of the estimator and the likelihood that the specified conditions will occur. 21/

2. Improving Cost Estimating Methodologies

Improving analytical methods for calculating the life-cycle costs of weapon systems has been an important concern within DOD for some time. Annual cost analysis symposiums have been sponsored to enhance the professional development of cost analysts and to promote more effective performance of the cost analysis function. The Defense Systems Management College at Fort Belvoir, Virginia, stresses cost analysis techniques as part of its comprehensive training program for participants in the acquisition process. Despite the considerable attention it has received over the years, it is widely acknowledged that estimating the cost of complex, technologically advanced weapons remains an imperfect science, particularly in the early stages of systems design and development. There are simply too many unknowns and too few directly comparable conditions with other systems to achieve any reasonable degree of accuracy without also factoring into the computations the element of risk or uncertainty.

21/ Fox, J. Ronald. Arming America: How the U.S. Buys Weapons. Cambridge, MA, Harvard University Press, 1974. p. 154.

This need has been recognized by DOD as reflected in Carlucci initiative #11, which recommended increased efforts to quantify risk and expand the use of budgeted funds to deal with uncertainty. All the services have been directed to review the Army's concept for risk budgeting and either adopt it or propose an alternative method. Introduced in 1974, the Army's TRACE program quantifies risk and includes funds in the budget to cover the estimated cost associated with risk. These risk funds are currently held at the service headquarters or at a command level and distributed to the program manager as needed.

In the second year-end report on DOD's acquisition improvement program, dated June 8, 1983, specific action to develop procedures to budget for technological risk was declared to have been implemented by the services. The report explains that the Army and Navy have succeeded in instituting TRACE; in the case of the Air Force similar techniques have been used for quantifying risk, but funding is held at the program manager's level. 22/

Much concern has been expressed over the difficulty of ensuring the full benefits of this initiative because DOD and congressional budget reviewers have tended to look upon TRACE funds as fair game for deletion in their constant battle to trim the defense budget. Thus, OSD and service leaders are being urged not only to exercise self-restraint but also to work with the congressional authorization and appropriation committees to win their acceptance of risk budget requests.

22/ U.S. Department of Defense. Deputy Secretary of Defense. Internal memorandum dated June 8, 1983 ... , op. cit., p. 16 (attachment).

Even if the effects of risk and uncertainty are calculated successfully, the problem of inaccurate cost estimates is far from solved. The entire incentive system, in the view of many analysts, does not support desired goals of reducing cost overruns. Initial cost estimates are kept low to increase the chances of funding for weapons felt to be crucial to national security. Responsible officials are aware from past experience that they will be rewarded more for the quality and timeliness of the weapons than for holding down costs. Likewise, defense firms are inclined to be less than honest with their initial cost estimates. The practice of "buying-in" is endemic and contractors know that they will not be penalized by the U.S. Government for providing misleading figures. Most defense analysts concur that substantial and continuing pressure from the Congress is needed if there is to be any chance of positive change in the area of incentives; the institutional inertia and resistance to change is considerable -- both in DOD and in the business world.

D. Other Examples of Important Initiatives

1. Enhance DOD Program Manager's Role

One of the basic principles of DOD's acquisition improvement plan is more delegation of responsibility and accountability for weapons programs. The acquisition process, in the view of many analysts, is much too diverse and complex to be managed on a highly centralized basis. Authority is to be delegated to the military services to a much greater degree, with a concomitant placement of accountability upon specific individuals. 23/

23/ Augustine, Norman R. Just How Good/Bad Is the Defense Acquisition Process. Government Executive, February 1982. p. 32.

In the 1950s the management of weapons acquisition was a substantially decentralized process. The results were discouraging. Consequently, during the 1960s and 1970s, successive Administrations sought to tighten control over key aspects of the process. The Reagan Administration is convinced, however, that past attempts at establishing detailed, centralized control -- especially by DOD's civilian research and engineering community -- have done more harm than good. Thus, DOD is now intent on implementing what is called "controlled decentralization," under which subordinate executives, especially service managers, will be held accountable for implementation of policy decisions reached by the Secretary of Defense. As explained by former Deputy Secretary of Defense Carlucci, the key individual in the process, the program manager, should be given "authority and resources adequate to execute efficiently the program for which he is responsible." 24/

The program manager is the focal point of U.S. Government and industry interaction in the development and production of a particular weapon system. He is the principal decisionmaker, acting within the broad guidance given to him, on the technical and financial aspects of the entire program -- not only the end product but also spares and supplies, maintenance procedures, and training of personnel.

The effort to enhance program manager clout is intended to achieve, among other things, greater accountability for curbing cost growth in weapons systems. This expectation, however, faces two difficulties. First, program

24/ U.S. Department of Defense. Deputy Secretary of Defense. Internal memorandum dated April 30, 1981 ... , op. cit., p. 2 (memo).

manager careers are linked to their respective military services, where cost considerations are subordinated to technical performance and delivery schedule. Unless military officer promotion criteria are changed to protect managers from adverse evaluations arising from unpopular decisions regarding weapons programs, it is unrealistic to expect an elevated level of cost consciousness on their part. A 1979 GAO study on cost growth underscored the pressures on program managers to downplay cost factors in their decisions. It reported that:

Weapons operational performance and delivery performance are paramount in the minds of DOD program managers and directors, and their careers ride on these priorities. These factors generally overshadowed cost concerns and, since DOD priorities are usually made quite clear to a contractor, the contractor has reason to rank productivity improvement and cost reduction as subordinate objectives. 25/

Second, program managers are handicapped by short tours of duty. Managing a major weapons acquisition program is a complex and demanding assignment that requires more than a year to gain familiarity with the requirements and issues. Yet, program managers -- like other military officers -- are routinely reassigned at the end of two or three years and replaced by new, relatively inexperienced officers. Currently, the average tour is about 3 years, while the average development time of a program is between 8 to 15 years, with major acquisition milestones occurring approximately every 4 years. Such short tours of duty not only fail to take advantage of experience and continuity, but also result in the dilution of accountability. By the time mistakes

25/ U.S. General Accounting Office. Impediments to Reducing the Costs of Weapons Systems, op. cit., p. 8.

have been uncovered, the individual responsible for them has been reassigned to another post.

Many witnesses in congressional hearings have stressed the need for more competent and dedicated people in the ranks of program managers. Norman Augustine has urged that all members of this group be required, prior to their assignment, to receive training at the Defense Systems Management College and to serve one tour as a deputy program manager. Furthermore, he believes program managers should be kept in place longer than three years. 26/

Some critics have called for legislative and administrative action, to provide necessary career incentives and protection. Others insist that the only way to guarantee an adequate cadre of program managers is to employ civilians in the key positions.

No other element in current DOD efforts to curb cost overruns more clearly reflects the inherent dilemmas and difficulty of reforming the acquisition process than the effort to strengthen the program managers' role. In 1969, Deputy Secretary of Defense David Packard, much like his successor in later years, Frank Carlucci, moved to upgrade the quality of program managers by increasing their authority and prestige. The Packard initiative failed to take root. It seems likely, therefore, that the present effort to strengthen program managers will depend for its success not so much on formal declarations of intent as on concrete actions taken to neutralize the

26/ Augustine, op. cit., p. 28/.

unsympathetic conditions that continue to dominate the management of PM careers. Such neutralization would give program managers, as a group, a better chance to gain the experience, authority, and incentive to exercise effective leadership.

2. Decrease Emphasis on High Technology

The pursuit of new technology has long been a driving force behind the U.S. weapons acquisition process. The emphasis on high risk technologies often results in lengthening delivery schedules and increased costs. The United States has sought to compensate for its inferiority in numbers compared with the Soviet Union by procuring high quality and high performance weapons. While few would argue with the country's need to maintain its technological edge, increasing numbers of defense analysts have expressed concern over what they consider to be excessive reliance on high technology.

One of the most critical examinations of the high-technology issue is contained in a study by DOD's Franklin C. Spinney titled "Defense Facts of Life." ^{27/} His thesis is that the increasing complexity of weapons has led to sharply rising costs which, in turn, have had an immediate effect on the number of weapons that can be afforded. The decline in numbers produced is accompanied by a second effect, namely, a decline in performance reliability. There are so many complex and relatively untested subsystems involved that malfunctions occur frequently.

^{27/} Spinney, Franklin C. Defense Facts of Life. [Staff paper prepared for internal use, U.S. Department of Defense]. December 5, 1980. 56 p.

Spinney and others have emphasized the particularly devastating effect on cost of what is described as the "last five percent syndrome." In the hearings conducted by the Special Panel on Defense Procurement Procedures, several of the witnesses stressed the point that, generally, the last 5 percent improvement in a system's performance may result in a 30 to 50 percent increase in its cost. They all agreed that dedication to such a high level of perfection was, in most cases, excessive and indefensible. Criticism of the military's high technology emphasis is thus not an argument against technology itself, but against an extreme devotion to it that aggravates problems of affordability and readiness.

The General Accounting Office has identified the U.S.'s high technology policy as not only a major contributing factor to the cost overrun problem, but possibly even the single most important cost driver. Its explanation of how this occurs is summarized as follows:

The drive for greater capability usually means complex electronics, avionics, fire control systems, and so forth, that keep adding to the cost in three ways. First, the research, development and test costs are driven up by the need to design, test, and integrate the complex subsystems to make them all work together to do the job that is desired. Secondly, the cost of procuring these items for production is extremely high, pushing the production costs way up. Third, and probably the greatest cost, is the high maintenance and support costs of the deployed system's complex equipment. These costs, which can be many times those of acquisition, are often overlooked during the acquisition cycle. 28/

28/ U.S. General Accounting Office. Impediments to Reducing the Costs of Weapons Systems, op. cit., pp. 8-9.

The high-technology emphasis of the U.S. defense community has been recognized for many years. In testimony before the Congress in late 1971, William B. McLean, technical director of the Naval Undersea Center, San Diego, California, declared that the acquisition process rewarded the design of complex and expensive systems and penalized work on simpler and, therefore, less expensive ones. He criticized the budgetary process in this context as "a ritual with no content." 29/

Department of Defense leaders, however, have rejected such characterizations of the high technology issue as "facile" and "simplistic." They reject the contention that shifting away from the present "superior quality" approach in weapons acquisition would produce significant cost savings. Indeed, they argue that it would most probably lead to an overall increase, after all operating, maintenance, and support costs were computed. A technologically simpler system may be cheaper in isolation, but the costs associated with providing additional personnel, training, and support for the increased number required are likely to equal, if not exceed, the alternative, technologically advanced system. Furthermore, as Secretary of Defense Caspar Weinberger noted in a September 12, 1983 statement, critics of high technology may be seen as putting cost savings before human lives. 30/ For example, in combat, cheaper, less sophisticated,

29/ Weapons Acquisition: How Faulty is Current System, Congressional Quarterly Weekly Report, op. cit., p. 2616.

30/ Washington Post, September 13, 1983. p. A12. For an article that presents the arguments in favor of a "superior" technology approach to weapons acquisition, see: Walker, Forrest E., Jr. Paradox and False Economy: Military Reform and High Technology. Air University Review. May-June 1983. pp. 11-23.

easier-to-maintain aircraft could be expected to suffer a substantially greater incidence of attrition.

In his April 30, 1981 memorandum on "Improving the Acquisition Process," then Deputy Secretary of Defense Carlucci acknowledged the need to change DOD's approach to technological innovation. He stressed the importance of examining evolutionary alternatives which use a lower risk approach than solutions at the "frontier" of technology. This evolutionary approach, as explained in various official communications, offers an alternative which minimizes technological risk and maximizes planned upgrading of already-deployed subsystems which offer the greatest benefits. In this manner, weapon systems cost may be reduced, lead time may be shortened, and reliability may be improved. The concept is referred to in Defense Department circles as Preplanned Product Improvement (P3I). 31/

P3I is not an entirely new idea to the U.S. military. The approach has been used in the past with a variety of weapon systems, such as the shoulder-fired anti-aircraft missile Stinger. The latter was designed from the outset to accept, at a later date, an advanced guidance system not available at the time of initial development. 32/

The major obstacle to wider adoption of the P3I principle, according to critics, has been the mindset of the acquisition community -- the users, engineers, and contractors. The first group, consisting of the uniformed

31/ U.S. Department of Defense. Deputy Secretary of Defense. Internal memorandum dated April 30, 1981 ..., op. cit., p. 2 (attachment).

32/ Elkins, Marlene M. P3I -- Help in Reducing Weapons Systems Costs. Concepts, Spring 1982. p. 108.

services, tends to view requirements in terms of desired technology. Its needs are defined in terms of what is "better" rather than "good enough." The result of this orientation is that features are added to a system in advance of their being economically reasonable. The second group is the engineering community, which generally exhibits great enthusiasm for pursuing the leading edge of technology. Reputations are made on the basis of major breakthrough. Engineers are therefore inclined to over-design a system, expecting to overcome difficulties that might arise during the development stage. The third group is made up of defense contractors, whose competition leads to proposals that push the state-of-the-art, since it is well known that the government itself is biased in that direction. 33/

In the second year-end review of DOD's acquisition improvement program (dated June 3, 1983), progress on the implementation of the P3I efforts was reported. A number of specific systems, such as the JVX tilt rotor aircraft and the 120mm gun for the M-1 tank, were cited as evidence of this progress. It was also pointed out that, during the past year, DOD executives have been examining the 15 FY 1983 and 10 FY 1984 new weapon systems program starts for P3I application. In these programs the potential for later incorporation of new and advanced characteristics is being built into the design. The report, however, openly admitted that the P3I initiative is confronted by two lingering problems. These are (1) a philosophical bias within DOD and the contractor community which impedes full implementation,

33/ Ibid., p. 106.

and, (2) a lack of adequate initial funding required by greater front-end costs and possible performance penalties. 34/

3. Impose Strict Reporting Requirements

The main focus of congressional initiative to curb the sharply escalating cost of weapons systems has been to impose more stringent DOD reporting requirements. Two years ago many critics considered the current cost reporting system, known as the Selected Acquisition Report (SAR) system, as seriously inadequate. It presented each system program manager's current "best estimate" of key performance, schedule, and cost goals, compared these estimates with baseline figures established at the time the program was approved for full-scale development, and explained all variances from the baseline. 35/ In congressional hearings witnesses testified that data in the SARs was often out of date and that potential cost growth in many programs could, and should, be identified much earlier. Also, information was presented which indicated that DOD was excluding certain weapons systems from the SAR by declining to classify them as "major."

Steps have been taken in subsequent months to strengthen and refine the laws governing DOD reporting requirements. In the FY 1983 DOD Authorization Act, the Secretary of Defense's latitude as to which programs were to be included in SARs was reduced. He is now compelled to include any program

34/ U.S. Department of Defense. Deputy Secretary of Defense. Internal memorandum dated June 8, 1983..., op. cit., p. 3 (attachment).

35/ U.S. Congressional Budget Office. Statement of Alice M. Rivlin, op. cit., p. 3.

estimated to require an eventual total expenditure for research, development, test, and evaluation of more than \$200 million or an eventual total expenditure for procurement of more than \$1 billion. This language is intended to ensure the inclusion in the SARs of a larger number of defense programs at an earlier stage in the acquisition process than has been the case in past years. 36/

Additional demands were imposed on DOD by the so-called "Nunn amendment," which created an "exception" reporting requirement (in contrast to the quarterly or "periodic" SARs) for FY 1982. Sponsored by Senator Sam Nunn and attached to the FY 1982 DOD Authorization Act (P.L. 97-86, section 917), the amendment took the March 1981 SAR projections as its base-line for weapons costs. For any weapon that exceeded by more than 15 percent the projections for either (1) the current procurement unit cost or (2) the total program acquisition unit cost, the Nunn amendment required the secretary of the military service buying the weapon to give the Congress a written report within 30 days explaining the reason for the increase, the names of the military and civilian officials responsible for the program, and actions taken or planned to control future cost increases.

For any weapon exceeding either of the cost thresholds by more than 25 percent, the Secretary of Defense also had to certify to the Congress within 30 days the military necessity of the weapon and identify alternative systems.

36/ U.S. Congress. House. Department of Defense Authorization Act of 1983. Conference Report [Report No. 97-749], 97th Congress, 2nd session, August 16, 1982. Washington, U.S. Govt. Print. Off., p. 24.

This reporting requirement was made effective for one year on a trial basis. The main purpose of this amendment was to increase further the Congress' awareness of cost growth in time to take appropriate action.

In more recent action, the provisions of the original Nunn amendment were extended indefinitely and the unit cost report triggering mechanism broadened in scope and impact. Following the recommendations of the House's Special Panel on Defense Procurement Procedures, the Department of Defense Authorization Act for FY 1983 contained language which obligates the program manager for each major weapon system to submit a report to the service secretary when there is reason to believe that there has been a 15 percent increase in contract cost or program unit cost. Based on the program manager's report, the service secretary is required to submit a program cost assessment report to the Congress. The new provisions further require additional reports from the program managers and service secretaries for every 5 percent increase above the original 15 percent cost growth in contract cost or program unit cost. ^{37/} The effect of this language is to apply pressure directly not only to the top level of DOD administration, but also to the lower levels of management, where initial and key decisions are made regarding major systems acquisition.

The Selected Acquisition Reports (SARs) and the unit cost exception reports represent the major thrust of recent congressional action to expand legislative oversight of weapons acquisition and curb cost growth. Other initiatives include (1) establishment of an Office of the DOD Inspector

^{37/} Ibid., pp. 26-30.

General to initiate, conduct, and supervise audits and investigations relating to the prevention and detection of fraud, waste, and abuse in the programs and operations of the department; and (2) requiring DOD to provide an annual report to the Congress on efforts to improve the functioning of its audit and investigative services as a means of reducing waste, fraud, and abuse. 38/

These recent congressional actions are seen by many as essential to the success of any campaign to bring cost overruns under control. The leading role of the Congress is particularly important in establishing a legitimate and effective framework for accountability throughout the acquisition process. Thus, the current emphasis on weapons cost reporting serves two functions. It provides the Congress with timely and accurate information upon which to base critical funding and programming decisions. At the same time, it underscores the Congress' deep concern over the cost overrun problem and its determination to see that something is done to correct the situation.

E. Status of the Defense Acquisition Improvement Program

In submitting the first year-end report on the acquisition improvement program to the secretaries of the military departments and others, former Deputy Secretary of Defense Carlucci expressed restrained optimism. He said

38/ The Department of Defense was not required by the Inspector General Act of 1978 to establish an Office of Inspector General because it was felt that an independent inspector could interfere with the chain of command and possibly compromise national security. The Department of Defense Authorization Act for FY 1983, however, amended the 1978 Act to provide for an Inspector General in the Department of Defense under the general supervision of the Secretary of Defense.

that progress had been made, but "it is also clear that we have some way to go before the 32 initiatives have become part of the daily way of doing business in the Department of Defense." ^{39/} Of particular concern to him was the need to push down the policies developed at top management levels to the working level in each service. Oversight of the implementation process was assigned to a permanent Acquisition Improvement Steering Group, chaired by the Deputy Under Secretary of Defense for Acquisition Management and including as its other members the principal military and civilian acquisition officers. Six working groups were formed within the Steering Group framework to focus on topical areas identified as key to implementation of the reform effort:

- Program Stability
- Multi-Year Contracting
- Preplanned Product Improvement
- Cost Growth
- Support and Readiness
- Competition

Each of these topical areas and the initiatives identified with them have an impact, to one degree or another, on the cost growth of weapon systems. The cost growth working group, however, was given the responsibility for eight initiatives which, perhaps, have the most direct and immediate impact. These initiatives fall into two major categories: those which lead to more realistic baseline cost estimates or budgets; and those which contribute to DOD's ability to control acquisition costs through contract selection and award.

^{39/} U.S. Department of Defense. Deputy Secretary of Defense. Internal memorandum dated July 15, 1982 ..., op. cit., p. 1 (memo).

In the second year-end report, dated June 8, 1983, OSD executives made no general claims of success or, for that matter, lack of success. It was pointed out, however, that 13 of the initiatives had been implemented and required only periodic monitoring. Nine of the initiatives showed varying degrees of progress but required further implementing action by the Office of the Secretary of Defense and service staffs. The report also identified six major areas that would receive the personal attention and emphasis of the new Deputy Secretary of Defense, W. Paul Thayer. These six areas, identified below, were chosen because they were thought not only to be the most challenging of the acquisition improvement program initiatives, but also the ones that held the most promise of significant cost savings. 40/

- Program stability
- Economic production rates
- Multi-year procurement
- Realistic budgeting
- Readiness and support
- Encouraging competition

Meaningful measurement of the results of the cost growth initiatives, as well as many of those associated with the other topical areas, is difficult at this relatively early stage. It will take another year or two, in the opinion of most knowledgeable observers, before sufficient evidence becomes available to permit any kind of reliable assessment.

40/ U.S. Department of Defense. Deputy Secretary of Defense. Internal memorandum dated June 8, 1983 ..., op. cit., p. 41 (attachment).

However, skepticism is quite widespread even now because, as many see it, successful implementation of the initiatives will require extraordinary management action on a wholesale, systematic basis. It is the institutional barriers to just such action that have produced wariness, if not outright pessimism. One senior member of industry explained in an interview that similar initiatives had been introduced by previous Administrations but, as soon as the players who participated in the reform effort left government service, the old bureaucratic process and perspective took over and things ended up back where they started. Others concur with the observation made by Leonard Sullivan, a former high level Department of Defense official, that the big problem with acquisition reform is that "it has a natural period far longer than the attention span of either the Congress or the appointed executive under the President." 41/

41/ Grading the Carlucci Directive: An Interview with Leonard Sullivan on Improving the Defense Acquisition Process. Armed Forces Journal, August 1981, p. 38.

IV. INCENTIVES AND ACCOUNTABILITY: AN APPRAISAL

A. Performance and Profit as Paramount Considerations

In reviewing DOD's and industry's role in the acquisition process, it is hard to find evidence that their basic outlook is sympathetic to giving cost reduction top priority. While not indifferent to measures of cost, since higher costs often translate into fewer "buys," the first order of priority for the military is to achieve and maintain a technological edge. Presumably, this is an orientation that the public should not only expect, but encourage, in those who are assigned responsibility for defending U.S. security interests. Similarly, industry's preoccupation with profit and its tendency to charge whatever the traffic will bear is not a new development.

Not only do key DOD and industry personnel view the acquisition process with relative indifference to the system's ultimate cost, they also tend to support and reinforce each other's institutional attitudes and interests. Thus, the incidence of military personnel, particularly those with experience and knowledge of systems acquisition, finding employment with private contractors upon retirement is high. ^{42/} At the same time, defense industry has been the source of recruitment for many individuals who have occupied key

^{42/} Reed, Leon S. Military Maneuvers: Analysis of the Interchange of Personnel between Defense Contractors and the Department of Defense. New York, N.Y., Council on Economic Priorities, 1975. 85 p.

government positions connected with weapons development and production. The net result is what some analysts see as an environment in which cost reduction receives low priority attention compared to performance and profit. To expect individuals in DOD or industry to act otherwise on a voluntary and unsupervised basis may well be naive and unrealistic, given human nature. Thus, arguably, any modification of their orientation and behavior in regard to standards of performance and return on investment would probably have to be imposed by an external, higher authority.

B. Congressional Motives and Responsibilities Examined

That higher authority, of course, exists in the Congress, with its legislative oversight and appropriation responsibilities. However, the motives of the Congress regarding weapon systems acquisition are mixed and many. Arguments in favor of cost reduction can be at odds with obligations to constituents as well as to provide for the nation's security. There are few Members who do not have in their district, or state, defense industries and a substantial labor force dependent on doing business with the U.S. Government. Given these circumstances, there has not been a great deal of incentive in the past to challenge unrealistically low estimates on weapons costs provided by DOD and industry. The situation may have changed, however, because of the recent recession and accompanying budgetary problems.

The depressed economy and unsettled feelings of the electorate may combine to act as a major stimulus to reform of the acquisition process. It is this external environment that most distinguishes the present reform effort from past ones and provides some basis for optimism about the outcome. By making

cost consciousness a high priority concern that can compete for the first time on even terms with performance and profit, the recession may have opened the door to constructive change and eventual success.

C. How to Ensure Continuity of the Cost Control Effort

The expanded reporting requirements levied on DOD by the Congress have done much to strengthen its oversight role. By making it clear that weapon systems cost is going to be monitored more closely, a greater degree of deterrence has been introduced into the process. Congress also has begun to utilize more extensively the services of the General Accounting Office and the Congressional Budget Office. At the urging of the Congress, CBO has established a cost estimating unit to review on a continuing basis the quarterly Selected Acquisition Reports submitted by DOD. Other cost overrun reform initiatives might also benefit from similar scrutiny from legislative agencies. Potential candidates for this kind of special attention might be a weapon system technology group (in the Office of Technology Assessment) and a program manager career evaluation group (GAO). If legislative branch agencies do not seem to be appropriate for such monitoring, then groups might be formed within one of the principal oversight committees.

No area of intended reform confronts more barriers to success than that involving DOD's program managers. How does one hold the program manager accountable for the rising cost of the system for which he has responsibility? What kinds of incentives are needed to offset service affiliation and other factors that push concern for cost into the background? The role of the program manager provides a key illustration of DOD's difficulty in reforming

the acquisition process. The trend in recent years has been toward centralization of authority, with the result being a system with multiple layers of review and micro-management. In the case of program managers, the evidence suggests that there has been a distinct diminishing of their sense of responsibility, since all major decisions about a program were made by someone at a higher level. According to testimony in congressional hearings, program managers were encouraged to become "leaners," accepting their lack of control and taking comfort in the widespread diffusion of responsibility.

The Reagan Administration has begun the process of reversing this policy by emphasizing the delegation of greater responsibility to program managers. While decentralization is a necessary step in making program managers more effective, it may not be sufficient by itself. It does not eliminate concern, for example, over the program managers' close ties to their respective military services and their ability to exercise independent judgement. Various solutions to this latter problem have been proposed, among them being the following: (1) protect military program managers so they can act independently of the services without risk to their careers; (2) employ civilians in the position of program manager as means of circumventing the above problem; and (3) attach ranking civilians to work alongside the military program managers to keep an eye on cost -- "cost control commissars." Each solution requires fundamental changes which have been opposed strongly by the services.

Given the great number of players involved in the acquisition process, success in controlling cost overruns will require not only an intensive commitment of staff resources, but also persistent follow-up efforts at all levels of management to make sure that cost control initiatives take

root. For the current acquisition reform effort to be successful, there would almost certainly have to be major changes in both organization and process. These changes, in turn, would require the high-level attention and long-term support of both DOD officials and members of the congressional oversight committees.

D. Is There Need for More Fundamental Structural Change?

There are analysts who believe that only major structural change in the U.S. Government's procedure for buying weapons will solve the problem of cost overruns. Thus far, advocates of structural change have tended to focus on DOD's organization alone -- with the aim of imparting greater objectivity and effectiveness to its weapons-buying operations. Examples of this orientation and its results are the establishment of the Cost Analysis Improvement Group (1973) and the Defense Resources Board (1979). ^{43/} Other more recent examples are (1) the designation of "competition advocates" by the military services and the Defense Logistics Agency in order to promote competition in weapons contracts, and (2) the establishment of the Office of the DOD Inspector General to provide a more centralized and stronger audit and investigative capability.

Currently, a number of other organizational initiatives are being pursued to further improve the DOD acquisition process. A provision of the

^{43/} The Defense Resources Board was created to ensure more effective integration of service program objectives and DOD budget consideration. Membership comprises the Deputy Secretary of Defense as Chairman plus other top DOD civilian managers, and a senior representative from the Office of Management and Budget. The only military delegate to the Board is the JCS Chairman.

DOD fiscal year 1984 authorization act 44/ creates an independent office to oversee the operational testing and evaluation of new weapons. The office, headed by a civilian director, will have broad powers to design and approve test procedures, participate in the decisions to build various weapons, and report to the Congress on any that do not perform well. In its report covering the management of the Defense Department, the President's Private Sector Survey on Cost Control has urged that the military services be stripped of much of their weapons-buying authority and that this responsibility be assigned to a newly created position of Under Secretary of Defense for Acquisition Management. Such a step would help, according to the report's explanation, to eliminate "massive duplication" in weapons purchases. It would also provide for greater management independence and objectivity throughout the entire acquisition cycle.

These examples do not exhaust the list of proposed structural changes aimed at strengthening the way DOD buys weapons. Almost all current initiatives, it should be noted, share a common trait, namely, their restricted scope. Little or no attention has been directed at the potential need for more sweeping structural change, such as the possibility of shifting the responsibility for acquisition management from the military services to a civilian-operated supply agency.

The civilian supply agency concept is one that has surfaced periodically in this country, particularly during the first half of the present century.

44/ P.L. 98-94, signed into law by the President on September 24, 1983.